PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in or relating to Rotary Printing Machines for Cinema and like Films

We, VIKTOR GLUCK, of Austrian nationality, and RAYMOND CECIL WILLIAMS, a British subject, trading as THE ELMEC ENGINEERING COMPANY, of 2a, Curzon Road, Ealing, London, W.5. do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to rotary printing machines for cinema and like films, and has for its object to provide an improved construction of machine for high speed printing which has no stationary parts which come into contact with the film, whereby scratching and damaging of the film which often arises with high speed printing, is obviated.

In film printing apparatus already known, the films pass in superposition over a roller or sprocket which is disposed adjacent to a lamp casing shaped to conform to the roller, said lamp casing being open or having an exposure slot in its wall, so that as the films pass the lamp casing exposure takes place, the films being guided so that they do not make contact with the lamp casing. The present invention is characterised by the feature that in printing apparatus of this kind, the superposed negative and positive films pass over an exposure roller or sprocket, part of which rotates in a longitudinal recess in the curved wall of a cylindrical lamp housing, the wall of the recess having in cross section an arcuate form concentric with the roller, with sufficient clearance between the roller and the recess for the films to make no contact with the wall of the recess, and a longitudinal exposure slot is provided in the curved wall of the recess which opens into the lamp chamber.

Before and after passing over the exposure roller, which may be a smooth roller or a sprocket roller, the two films pass in known manner in superposition over toothed feed and take-off sprockets, and the films are maintained in close contact with the exposure roller by jockey rollers, one for each film, which take up any slack in the films, and in conjunction with its feed and take-off rollers, hold the films in contact with the exposure roller or sprocket for an angular arc exceeding the arc of the roller or sprocket within the recess in the lamp housing.

In order that the invention may be clearly understood and readily carried into practice, an example of apparatus according thereto is illustrated by the accompanying drawings, in which:—

Figure 1 is a perspective view of the printing gate of the machine, and

Figure 2 is a diagrammatic sectional view of the machine.

Referring to the drawings. *a* is the negative film and *b* the positive film, both of which pass in superposition over an exposure sprocket *c* which has part of its periphery rotating in an arcuate recess *r* in the lamp house *d*. In the wall of the lamp house is a slot *e* which opens into the recess *r* and serves to allow light from the lamp house to pass through the negative film on to the positive film *b*, as the two films travel over the exposure sprocket *c*.

Before passing on to exposure sprocket *c* the two films pass over feed sprocket *s* and after passing over sprocket *o* the two films pass over a take-off sprocket *t*. Between sprockets *c* and *t* the two films are independently tensioned by jockey rollers *f*, *f*' which may be spring pressed, or gravity actuated, so as to take up any slack in the films and hold them tightly in contact with exposure sprocket *c*, so that they are prevented effectively from making any rubbing contact with the wall of recess *r*, which might make scratches on the negative film.

It will be understood that instead of employing an exposure sprocket *c*, a smooth roller could be employed.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A high speed film printing machine of the kind described, wherein the superposed negative and positive films pass over an exposure roller or sprocket, part of

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which rotates in a longitudinal recess in the curved wall of a cylindrical lamp housing, the wall of the recess having in cross section an arcuate form concentric with the roller, with sufficient clearance between the roller and the recess for the films to make no contact with the wall of the recess, and a longitudinal exposure slot is provided in the curved wall of the recess which opens into the lamp chamber.

2. A machine according to Claim 1, wherein before and after passing over the exposure roller or sprocket the films pass in known manner over feed and take-off sprockets or rollers and also over intermediate jockey rollers, one for each film, by which the films are independently tensioned, these sprockets or rollers being so located that the films are held in contact with the exposure roller or sprocket for an angular arc exceeding the arc of the roller or sprocket within the recess in the lamp housing.

3. High speed printing machine for films, substantially as herein described with reference to and as illustrated by, the accompanying drawings.

Dated this 18th day of July, 1944.

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FIG.1.

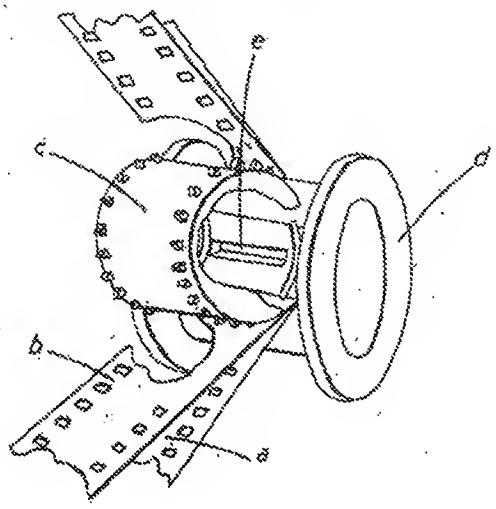

FIG.2.